Revised Draft Environmental Impact Statement/
Environmental Impact Report

Truckee River Operating Agreement

Cumulative Effects Appendix

California and Nevada

August 2004

United States Department of the Interior
Bureau of Reclamation
Fish and Wildlife Service
Bureau of Indian Affairs

State of California
Department of Water Resources

Contents

CUMULATIVE EFFECTS APPENDIX

The tables in this appendix briefly summarize reasonably foreseeable future actions in the area. Local governments and other agencies were contacted to identify these actions. Eight criteria were used to determine those actions that were considered in the technical analyses presented in Chapter 4, Cumulative Effects. To be considered further as potential examples for each trend area, each action needed to meet all eight of these criteria (numbered 0 through 7):

0. Is there a specific proposal or project?

1. Does the proposal or project have an identified sponsor who is seriously proposing this?

2. Does the project have identified sources of funding?

3. Has the project initiated NEPA compliance or other regulatory procedures?

4. Does the project have aspects that are not already analyzed under the No Action Alternative (No Action)?

5. Is the project defined in enough detail to allow meaningful analysis?

6. Is the project defined in enough detail to determine if there would be any potential effect on the indicators used in the analysis of the Truckee River Operating Agreement Alternative (TROA)?

7. Does the project proposed for cumulative analyses affect any of the indicators used to analyze TROA?

The tables list those actions that were and were not considered further. If an action was not considered further, then a note () referring to the number of the criteria is listed in the "Meet all criteria for further inclusion?" column.

The potential effects listed in these tables are preliminary and were use for classification purposes only. They were not derived from any evaluation of conceivable effects.

This appendix includes material that the technical team agreed was either irrelevant or covered elsewhere. This material was retained to provide full disclosure of the cumulative effects analysis process.

(All Public Law 101-618 actions are listed in Section I of chapter 4, with notes on how they were analyzed. These actions were originally included in table CE-4-1a. Thus, table numbering begins at CE-4-1b.)

Table CE-4-1b.—Water supply

Reference number/ considered further?	Project name and description	In operations model?	Indicators potentially affected	Meet all criteria for further consideration?
WS-LT-1 NO	Replace seven wells in Lake Tahoe Basin. South Tahoe Public Utility District proposes to replace seven old wells between 2003 and 2013.	Does not change the amount of groundwater used.	Contaminants of concern are arsenic, manganese, MTBE, and radionuclides. District may pursue applications for surface water rights to replace groundwater supply.	Not considered further (0, 7). No proposal pending, and allocation of water remains the same.
WS-LT-2 YES	Address pending water rights applications before the State Water Resources Control Board; (11 applications with a total face value of 56, 612 acre-feet).	Operations model reflects the use in 2033. Under the Compact, total water use cannot exceed 34,000 acre-feet. If TROA is not implemented, these water rights might be issued and effects above this amount are not analyzed in Operations model.	Water use and supply	Considered further. If TROA is in place, then these would be limited to 23,000 acre-feet. Under No Action or LWSA, these limits might be exceeded.
WS-TC-1 YES	Address pending water rights applications before the State Water Resources Control Board;(11 applications with a total face value of 17,715 acre-feet)	Operations model reflects the use in 2033. Under the Compact, total water use cannot exceed 32,000 acre-feet. If TROA is not implemented, these water rights might be issued and effects above this amount are not analyzed in operations model.	Water use and supply	Considered further. If TROA is in place, then these would be limited to 23,000 acre-feet. Under No Action or LWSA, these limits might be exceeded.
WS-TC-2 YES	Meet Squaw Valley Public Service District water demands Need 1,600 gallon-per-minute capacity. Will probably build a well for 1,200 acre-feet out of the 1,640 acre-feet sustainable yield.	Same as WS-TC-1.	Water use and supply. Water comes from Truckee River basin.	Considered further and is in operations model for alternatives. This s part of the future projected groundwater demands in operations model.

Table CE-4-1b.—Water supply

Reference number/ considered further?	Project name and description	In operations model?	Indicators potentially affected	Meet all criteria for further consideration?
WS-TC-3 YES	Develop a water extraction facility for bottled water in Coldstream Canyon. Wells and permit are in place.	Same as WS-TC-1. Operations model does not specifically analyze effects to Donner Creek from this proposal.	Project would reduce flows in Coldstream Creek, a tributary to Donner Creek downstream from Donner Lake	Considered further
WS-TN-1 YES	Two activities: 1. South Truckee Meadows Water Treatment Plant. Project proposes to construct two water treatment plants with a total capacity of 9MGD to treat poor quality groundwater and water diverted from Galena, Whites and Thomas Creeks. 2. South Truckee Meadows Water Reclamation Facility Project proposes to expand the existing facility to annually treat up to 10,000 AF of municipal and industrial wastewater. This facility does not discharge to the Truckee River. All effluent is derived from sources not subject to return flow requirements of TROA or Nevada law and is to be reused for irrigation and industrial purposed.	This would not impact the Truckee River because return flows will not be returned and are not required to be returned. This is a moot point for operations model.	Water will be used from sources not subject to TROA or Nevada return flow requirements.	Considered further

Table CE-4-1b.—Water supply

Reference number/ considered further?	Project name and description	In operations model?	Indicators potentially affected	Meet all criteria for further consideration?
WS-TN-2 YES	Maximize South Truckee Meadows well field pumping capacity to 9,500 acre-feet per year for municipal water. Average pumping would be 6,900 acre feet per year and maximum would be used during droughts.	Future groundwater use is incorporated in operations model.	Secondary groundwater (drought water supplies) would likely contain arsenic over the MCL and would be treated to meet drinking water standards	Considered further
WS-TN-3 YES	Import groundwater. Washoe County Water Planning Commission is studying three projects would import water to meet build out demands. Excess capacity would recharge local aquifers.	Not specifically reflected in operations model. This shouldn't effect Truckee River flows or assumptions.	The project would not increase TMWA water supply yield but could allow reallocation of current resources. This could allow for additional development, but would not increase the amount of water diverted from the Truckee River.	Considered further
WS-TN-4 NO	Import groundwater. Two projects studied by Washoe County Water Planning Commission would import surface and groundwater from the Humboldt River Basin and groundwater from Hualapai Flat.	See WS-TN-3.		Not considered further because no proposals are pending.
WS-TN-5 YES	Develop Fernley M&I supply. Fernley has acquired surface water rights and is looking for more water rights and storage. Negotiations are in abeyance.	Fernley water supply is incorporated into operations model with an assumed demand of 6,800 acre-feet to 2033. Analysis of TROA included an optional scenario analysis that includes storing part of this water in upstream reservoirs.		Considered further in optional scenario analysis.

Table CE-4-1b.—Water supply

Reference number/ considered further?	Project name and description	In operations model?	Indicators potentially affected	Meet all criteria for further consideration?
WS-TN-6 YES	Construct municipal water supply well field and system for Wadsworth, Nevada,to serve patent and tribal areas.	Operations model incorporates additional M&I uses for Pyramid Lake Tribe modeled as surface water.	Construction will be completed in 2005. The project will require a change in diversion points, but amount of diversion is not known.	Considered further but as part of operations model.
WS-LV-1 YES	Implement Churchill County Water Resources Plan. The final plan has been adopted.	No	Reduction in quantity and quality of groundwater.	Considered further: M&I water use in Lahontan Valley

Table CE-4-1c.—Global climate change

Reference number/ considered further?	Project name and description	In operations model?	Indicators potentially affected	Meet all criteria for further consideration?
GC-1 YES	Research climate change. Temperatures increases could cause less snow and more rain during winter, reducing snowpack. More hot summer days could increase water demands.	No.	Snowpack and streamflows to 2033 are expected to remain relatively unchanged. Flexible management in TROA would provide opportunities to address potential climate change effects.	Yes. Write a narrative on effects of climate change.

Table CE-4-1d.—Ground and surface water management

Reference number/ considered further?	Project name and description	In operations model?	Indicators potentially affected	Meet all criteria for further consideration
GS-TN-1 YES	Address water conflicts through DOI's Water 2025	Operations model reflects conservation requirements in baseline and all alternatives. TROA incorporates conservation and removal of some institutional barriers.	Identified Truckee River basin as an area where water supply crises could occur by 2025. No specific proposals.	Considered further; consider as an initiative
GS-TN-2 NO	Develop regional floodplain management plan. Regional Water Planning Committee has a draft plan (2003) that proposes structural and nonstructural policies for Washoe county flood plains.	No. TROA does not change flood control operations.	Reduce costs to community for regional flood control and flood insurance premiums.	Not considered further —0 no specific proposals are proposed
GS-TN-3 NO	Work with interim flood policies from Regional Water Planning Committee. These policies protect recharge areas.	No. See GS-TN-2	Policies include evaluating and mitigating effects to 100-year flood peaks and floodplain storage volumes.	Not considered further (0). No specific proposals.
GS-TN-4 NO	Protect or restore stream corridors and drainages within the greater Truckee Meadows. The Washoe County Department of Water Resources, UNR-Cooperative Extension, and Washoe-Storey Conservation District are developing a Watershed and Management Protection Plan.	No.	Goal is to maintain or improve water quality and storm water runoff through watershed planning, storm water detention, stream system preservation, bio-engineering techniques in lieu of structural controls, low impact development codes, and storm water and groundwater recharge.	Not considered further (0). No specific proposals.

Table CE-4-1d.—Ground and surface water management

Reference number/ considered further?	Project name and description	In operations model?	Indicators potentially affected	Meet all criteria for further consideration
GS-TN-5 NO	Add treatment capacity to Chalk Bluff Facility from 69 MGD by 13.8 MGD in 2004; 13.8 MGD in 2023; 13.8 MGD in 2030	Yes. This adds capacity for treatment. Operations model accounts for this increased use.		Not considered further (4). Considered in analysis (7). No changes in structure
GS-TN-6 YES	Replace rock structure at Glendale Diversion. New structure will divert up to 37.5 MGD (existing plant capacity). Present structure diverts up to 25 MGD.	Yes. Operations model accounts for the overall ability for diversions.	This structure incorporates the ability to: By-pass fish flows to benefit fish habitat in the Truckee River between Glendale Diversion and Pyramid Lake. Provide flows for recreation uses, sediment transport, and downstream diversions	
GS-TN-7 NO	Use gravel pit water for Tracy Power Station for cleaner water during high turbidity events in the Truckee River.	Operations model currently accounts for this use.	This would not affect total water diversions or use.	Not considered further (0). No specific plan.
GS-TN-8 YES	Retire 6,500 acres of protested water rights by 2005. This is under the AB 380 Program (1999) to resolve protested water right transfers by the Pyramid Tribe that were abandoned or forfeited in the Newlands Project.	Operations model reflects this land retirement and water transfers	Part of Article 4 (i) e of TROA	This needs to be mentioned in some fashion. TROA incorporates this by reference to the status of water rights in the basin.

Table CE-4-1d.—Ground and surface water management

Reference number/ considered further?	Project name and description	In operations model?	Indicators potentially affected	Meet all criteria for further consideration
GS-TN-9 NO	Orr Ditch Claim 3 to change place and manner of use of 756.4 acre-feet of water Pyramid Lake Tribe obtained under the Truckee Division WRAP and Land Exchange Programs.	Operations model currently accounts for this use.		Not considered further (6). State Engineer has not ruled on this.
GS-LV-1 NO	Implement 1997 OCAP to manage water diverted to and within the Newlands Project. This was implemented in 1995 and is now being reevaluated.	Yes. This is part of the baseline and incorporated in operations model runs.	May reduce or increase demand and lower Truckee seasonal flow	Considered already.
GS-LV-2 NO	Re-designate 9,000 acres of land in Carson Division of Newlands: 1995 Bench Bottom Ruling	Yes. This ruling was incorporated into operations model runs as part of the baseline	Incentive credit Potential for OCAP credit water Water demand and storage.	Considered already.
GS-LV-3 NO	Continue NRCS Environmental Quality Incentives program to improve irrigation water management, grazing and land resources, and control noxious weeds.	Total use is incorporated in operations model.	Potential to improve water quality to Lahontan Reservoir. Not an effect of TROA.	Not considered further (0). No specific proposal (6). Insufficient detail.

Table CE-4-1d.—Ground and surface water management

Reference number/ considered further?	Project name and description	In operations model?	Indicators potentially affected	Meet all criteria for further consideration
GS-LV-4 NO	Manage storm water in Carson City to detain 100-year 24-hour flows and treat runoff from paved surfaces.	Water supplies would not be depleted, and water would not be impacted on a monthly basis. Does not need to be considered in operations model.	These facilities would affect the amount, timing, and quality of flows in the middle Carson River on a daily basis. Not evaluating water quality in Lahontan and Carson reservoirs. Models are on monthly, not daily basis.	Not considered further (7). In sufficient detail.

Table CE-4-1e.—Water quality improvement projects

Reference number/ considered further?	Project name and description	In operations model?	Indicators potentially affected	Meet all criteria for further consideration?
Lake Tahoe basin				
WQ-LT-1 YES	Regulate wastewater discharge in the Truckee River. The California Regional Water Quality Control Board has 271 permit applications pending, and requires applicants to comply with water quality standards. Monitoring is required for ski areas, but not for all projects.	Operations model assumes water quality standards will be met. This is in WRMF.	Because water quality effects generally cannot be totally mitigated, adverse effects to water quality from these and future projects are likely to occur.	Do a limited analysis with this information available
Truckee River basin in California				
WQ-TC-1 YES	Retrofit two recreational residence tracts. The Forest Service LTBMU will retrofit Fir Craigs and Twin Craigs along the Truckee River downstream from Tahoe City by 2009.	Operations model covers future water use.		Contact Forest Service to determine if this is part of an overall program to retrofit recreational residence tracts. If so, talk about this as an aggregate.
WQ-TC-2 YES	Regulate wastewater discharge in the Truckee River. Same as WQ-LT-1, but with 49 permit applications pending.	Operations model assumes water quality standards will be met. This is in WRMF.	See WQ-LT-1	CA: YES

Table CE-4-1e.—Water quality improvement projects

Reference number/ considered further?	Project name and description	In operations model?	Indicators potentially affected	Meet all criteria for further consideration?
Truckee River basin in Nevada				
WQ-TN-1 YES	The Truckee Meadows Storm Water Quality Management Program was adopted in December 2001, with an accelerated schedule to comply with Phase I NPDES permit by 2005. Manage storm water. Washoe County proposes implementing storm water pollution controls Phase II.	No.	See GS-LV-4 Anticipated to reduce urban storm water pollutants to Truckee River and tributaries from Reno, Sparks, and unincorporated Washoe County. Improved water quality.	Yes. Aggregate with stormwater management.
WQ-TN-2 NO	Consider overall watershed protection plan: Washoe County.	No.	Improved water quality.	Not considered further (0). No specific proposals
WQ-TN-3 NO	Remediate groundwater contamination in Truckee Meadows from industrial solvents. Treated water would be used as part of the municipal water supply.	No	Improved water quality.	Not considered further (0). No specific proposals
WQ-TN-4 NO	Treat Fernley water. The city of Fernley Public Works Department proposes to develop an arsenic removal system to comply with Federal regulations and to expand the existing sewer plant by 2008.	No. Operations model does not include Fernley groundwater use.	Improved water quality.	Not considered further (0). No specific proposals.

Table CE-4-1e.—Water quality improvement projects

Reference number/ considered further?	Project name and description	In operations model?	Indicators potentially affected	Meet all criteria for further consideration?
WQ-TN-5 YES	Treat South Truckee Meadows water. Washoe County proposes to construct two potable water treatment plants to treat water from Galena, Whites, and Thomas Creeks. Total capacity would be 9 MGD in a water supply year of 6,700 acre-feet.	Not in operations model because this is outside the current service area.	This would treat poor quality groundwater that does not currently meet drinking water standards. Water Quality Credit Water. No effect on water quantity, but may potentially affect water quality.	
WQ-TN-6 YES	Implement Truckee River Water Quality Settlement Act/Agreement (WQSA)	Yes	More water would be available for diversion at Truckee Canal may flow to Lahontan Reservoir. Effect on water quality only. Overall effect on total load could increase No net change in quantity in the Truckee River	Refer to WQSA and incorporate by reference.
WQ-TN-7 NO	Evaluate Lower Truckee River pollution trading. Feasible trades must be acceptable to EPA, NDEP, and Pyramid Lake Tribe, and may be implemented in the next 30 years	No. This would not affect water quantity.	Historically, pollution trades are based on a multiplier requiring more environmental cleanup than the increased pollutant load in the trade, so the environment receives a significant net benefit from such trades.	Not considered further (0). No specific proposals.

Table CE-4-1f.—Water pollution control projects

Reference number/ considered further?	Project name and description	In operations model?	Indicators potentially affected	Meet all criteria for further consideration?
		Lake Tahoe basin		
WP-LT-1 NO	TRPA Water Quality Thresholds: The Tahoe Regional Planning Compact Public Law 96-551, as revised in 1980, gave TRPA authority to adopt environmental quality standards, called thresholds, and to enforce ordinances designed to achieve the thresholds. Regulation has provided a handle on mitigating the effects of new development. The Capital Improvements Program, also part of the Regional Plan, addresses the need to repair existing environmental damage. Local governments, with matching federal and state funds, have spent over $100 million on projects to control erosion and runoff, improve drainage and restore the fragile watershed.	No.	If thresholds are in place, then water needs to be put in the system to meet the thresholds—or treatment levels need to change. Info from http://www.trpa.org This was adopted and used since 1987.	No. this is accounted for in analysis in previous actions.
WP-LT-2 YES	Implement Lake Tahoe Environmental Improvement Program (EIP) TRPA released the EIP in December 2000, identifying environmental research and improvement and	No. But this would not affect water quantity.	Cost will be about $908 million shared among federal, state, local and private. This may address water clarity in Lake Tahoe. This may improve quality of Lake	Yes. Consider all of 2 as an aggregate. This just breaks it out into more detail.) http://www.trpa.org/eip.html

Table CE-4-1f.—Water pollution control projects

Reference number/ considered further?	Project name and description	In operations model?	Indicators potentially affected	Meet all criteria for further consideration?
	restoration projects over the next 15 years.		Tahoe, but would not affect downstream quality. This may decrease sediment loading.	
WP-LT-2a	Implement EIP's Water Quality Element to meet TRPA's Water Quality Environmental Thresholds (non-degradation of water quality objectives and a winter Secchi depth water clarity reading of 33.4 meters.	No. But this would not affect water quantity.	82 projects include controlling erosion, restoring habitat, and implementing BMPs. The key objective is to eliminate or reduce sources of eutrophication and contamination of water and convey and treat runoff from urbanization and roads. BMPs are generally not completely successful in preventing discharge of sediment to streams over the short term.	
WP-LT-2b	Implement EIP's Soil Conservation Element to reduce sediment and nutrients by properly conveying and treating runoff.	No. But this would not affect water quantity.	41 projects include restoring stream environment zones, stabilizing banks and channels, restoring creeks, removing dams, and obliterating roads.	
WP-LT-2c	Implement EIP's Wildlife Element to improve wildlife habitat.	No. But this would not affect water quantity.	14 projects would improve water quality draining to Lake Tahoe, including restoring 71 acres of riparian habitat, enhancing over 2 miles of stream, and restoring 23 acres of meadow.	
WP-LT-2d	Implement EIP's Vegetation Element to achieve forest health.	No. But this would not affect water quantity.	Nine projects would restore a naturally functioning stream environment zone on 8 acres, conduct prescribed burns on	

Table CE-4-1f.—Water pollution control projects

Reference number/ considered further?	Project name and description	In operations model?	Indicators potentially affected	Meet all criteria for further consideration?
			450 acres, mechanically treat 2,100 acres of forest, revegetate 150 acres. This would improve water quality and protect three Tahoe yellow cress sites.	
WP-LT-2e	Implement EIPs Fisheries Element to improve and restore prime fish habitat in Lake Tahoe and tributary streams and ensure access to spawning and feeding habitat.	No. But this would not affect water quantity.	Projects would restore habitat on 35 creeks, improving 211.6 miles of stream, 67.6 acres of meadow and over 1,750 acres of lake habitat. Most of these include bank stabilization to help improve water quality.	
WP-LT-3	Jet ski control program.in preparation. See 1999 Shore Zone EIS and Code of Ordinances.	No. But this would not affect water quantity, only quality and erosion.		OMIT
WP-LT-4 YES with other stormwater	Issue Tahoe Basin Stormwater Permit for the Nevada Department of Transportation for all of the Nevada state highway system in the Lake Tahoe hydrogeographic basin.	No. But this would not affect water quantity, only quality and erosion.	A storm water management plan for BMPs for highway operations which affect stormwater quality and a stormwater monitoring plan would estimate the quality of stormwater discharges, effectiveness of BMPs, and pollutant loads to receiving waters.Water quality	CA MAYBE Yes. Write a narrative on improvements in water quality and aggregate with other stormwater.
Truckee River basin in California				
WP-TC-1 YES Aggregate with runoff improvement	Retrofit Alpine Meadows Ski Resort parking lot by 2007.	No. But this would not affect water quantity, only quality.	The project would have a positive effect on water quality to the Truckee River.	Considered further in the analysis, but as a smaller program that is aggregated into recreation development

Table CE-4-1f.—Water pollution control projects

Reference number/ considered further?	Project name and description	In operations model?	Indicators potentially affected	Meet all criteria for further consideration?
WP-TC-2 See WS-TC-2.	Improve water quality at Squaw Valley Ski Resort. LRWQCB issued a cleanup and abatement order	No. But this would not affect water quantity, only quality (contamination and sediment).	Reduce potential erosion and sediment discharge to Squaw Creek.	Yes.
WP-TC-3	Study TMDLs of Squaw Creek. The Lahonton Regional Water Quality Control Board is studying this.	No. But would not impact water quantity, only quality (contamination and sediment).	Actions may positively affect water quality in Truckee River.	Combine with WP-TC-2
Truckee River basin in Nevada				
WP-TN-1 YES	Issue permits for wastewater or treated water discharges to the Truckee River. The Nevada Division of Environmental Protection has 16 permit applications identified (pending?) in the Reno/Sparks area.	No. But this would not affect water quantity, only quality.		Treat in the same way as other wastewater permits.
WP-TN-2 NO	Discharge treated water from City of Sparks to Truckee River. Build a treatment facility and have an interim mixing	No. But this would not affect water quantity, only quality		Not considered further (5). Insufficient information.

Table CE-4-1g.—Wastewater treatment

Reference number/ considered?	Project name and description	In operations model?	Indicators potentially affected	Meet all criteria for further consideration?
Truckee River basin in California				
WW-TC-1 NO	Expand Tahoe-Truckee Sanitation Water Reclamation Plant by 30 percent, from 7.4 MGD to 9.6 MGD to provide enough capacity to treat year 2015 wastewater flows. The Tahoe Truckee Sanitation Agency (TTSA) is doing this. Additional expansion will be required between 2015 and 2033.	No. But current treatment and level of treatment would continue, so no effects. Operations model assumes can treat future demands	These improvements would provide capacity to convey historical peak infiltration and inflow from warm storm a\events that accelerate snowpack runoff, increase sewage flow from future population increases, and provide a margin of safety against possible accidental release from the Truckee River Interceptor during major storm events. Water quality	No (4). This is covered in current conditions.
Truckee River basin in Nevada				
WW-TN-1 YES	Expand Truckee Meadows Water Reclamation Facility to 51.2 mgd to meet planned treatment demand for the region. Also retrofit or upgrade existing process units and ancillary equipment to extend unit life. Preparing a NEPA document.	Yes. Urban treatment is included in operations model to handle higher levels of wastewater. Operations model assumes can treat future demands	Water quality	Yes.

Table CE-4-1g.—Wastewater treatment

Reference number/ considered?	Project name and description	In operations model?	Indicators potentially affected	Meet all criteria for further consideration?
WW-TN-2 YES	Construct sewer interceptors in the Lawton/Verdi area. This would remove major septic systems that now discharge to groundwater that eventually reaches the Truckee River and transport wastewater to existing facilities for treatment.	Urban treatment included in operations model. If this is included in the future projections, it's in operations model. Probably not in the WARF model	Now, about 250-300 septic tanks release effluent at a rate of about 200 gallons a day per tank. When the area is completely developed in 2033, flow to the river would be 6 million gallons per day. The interceptor would divert and treat this flow. This project could reduce nitrogen load to the Truckee River. This could change timing on the water quality and quantity Groundwater Water quality	Yes
WW-TN-3 YES	Treating wastewater in Wadsworth. Washoe County and the Pyramid Tribe propose to construct a wastewater treatment plant and sewer collection system to serve both patent and tribal areas of Wadsworth, Nevada.	Not specifically in operations model. Quantity is partially modeled for alternatives.	This could affect flows in specific parts of the lower Truckee River, which could affect flows to Pyramid Lake. Water quality Ground water Surface water Change of diversion	Insufficient information to determine potential ground or surface water effects.
WW-TN-4 NO	Prevent and remediate nitrate contamination of groundwater in Spanish Springs Valley from septic tanks from 2,000 residential units. Build wastewater collection and remediation and management facilities	Not specifically, but is reflected in overall development trends.	This may improve groundwater quality Water drains into Truckee River	Not considered further (5). Insufficient information

Table CE-4-1g.—Wastewater treatment

Reference number/ considered?	Project name and description	In operations model?	Indicators potentially affected	Meet all criteria for further consideration?
WW-TN-5 NO	Study developing wastewater treatment facility in Spanish Springs Valley to treat all or part of the wastewater generated in the basin, which drains to the Truckee River.	Not specifically, but is reflected in overall development trends.		Not considered further (1). Not a serious proposal.
WW-TN-6 YES	Implement wastewater facility plans for Nixon and Sutcliffe. Pyramid Tribe would use a groundwater source in Cold Creek area to consolidate wastewater systems for Nixon and will improve outdated municipal water systems in Nixon and Sutcliffe.	Not specifically in operations model but operations model assumed that Tribe will use all its water rights.		Yes. Insufficient information to determine potential ground or surface water effects. Treat the same as WW-TN-3.

Table CE-4-1h.—Habitat restoration, including weed control

Reference number/ considered further?	Project name and description	In operations model?	Indicators potentially affected	Meet all criteria for further consideration
HR-LT-1 NO	Restore habitat on National Forest lands. Upgrade 35 miles of roads and trails	No. This could affect water quality, not water quantity.	These projects would improve water quality and reduce soil erosion.	Not considered further (7). No significant effects
HR-LT-2 NO	Decommission 18 miles of roads in National Forest lands in the Tahoe Basin.	No. This could affect water quality, not water quantity.	These projects would reduce chronic erosion sources, restore hill slope hydrology, reduce disturbance to wildlife, and restore ecological processes.	Not considered further (7). No significant effects
HR-LT-3 NO	Enhance stream and meadows in the 2.5 acres in Incline Village	No. This could affect water quality, not water quantity.		Not considered further (0). No specific plan.
HR-LT-4 NO	Control Eurasian water milfoil. Currently, control is limited to Lake Tahoe at the Tahoe Keys Marina, but the plan has been found in the Truckee River as far east as Tracy, Nevada. Now use mechanical means to maintain a navigable waterway at Lake Tahoe. LRWQCB has not approved a proposal to use chemical means.	No. This is limited to Lake Tahoe.	.	Not considered further. No proposal to use chemicals, and LRWQCB is not allowing this type of project to go forward.

Table CE-4-1h.—Habitat restoration, including weed control

Reference number/ considered further?	Project name and description	In operations model?	Indicators potentially affected	Meet all criteria for further consideration
HR-LT-5 NO	Conserve Lake Tahoe yellow cress, a rare plant on the shores of Lake Tahoe. Actions include protecting priority sites, developing site specific management plans, managing all sites that currently support yellow cress, carrying out experimental reintroductions, monitoring natural and reintroduced populations, developing an interagency low population fencing and management permit, maintaining a site ranking for every site, addressing water level management within Lake Tahoe, and considering upland environmental improvement projects.	No. If water level management criteria changes from current, this is not reflected in operations model.	Goals are to protect occupied and potentially suitable habitat, improve yellow cress populations, promote conditions for a meta-population dynamic, revise and continue monitoring for the plant, and implement an interagency adaptive management framework.	No (4). How this relates to TROA is handled in the analysis section and does not need to be considered in the cumulative effects analysis. No (5). Do not know if this will be accepted or what the analysis results will be.
Truckee River basin in California				
HR-TC-1 NO	Restore 1,000 feet of stream banks along Truckee River. LTBMU proposes restoring this where river rafters have caused soil compaction.	No. This could affect water quality, not water quantity.	Riparian vegetation	Check with Steve Caicco.

Table CE-4-1h.—Habitat restoration, including weed control

Reference number/ considered further?	Project name and description	In operations model?	Indicators potentially affected	Meet all criteria for further consideration
HR-TC-2 NO	Restore habitat along streams. Truckee River Watershed Council proposes a series of habitat restoration projects in the Truckee River basin in California. Some have partial funding; others need funding, a sponsor, planning.	No. This could affect water quality, not water quantity.	Areas include Trout Creek, Jones Valley, Prosser Creek (fish habitat), Little Truckee River-Perazzo Stream, Davis Creek, and Donner Creek (vegetation and abutment removal).Riparian vegetation	There are habitat restoration projects along the Truckee River that considered together should have a definite positive effect on riparian vegetation in the river. Coordinate with Greg Reed. Steve Cicacco is doing effects of riparian vegetation
HR-TC-3 NO	Conservation easements: 455 acres at the confluence of Independence Creek and Little Truckee River; 480 acres from tribe south of Babbitt Peak in Sierra County	These are in place. Are these in the past cumulative effects section?		Not considered further (1). No specific proposals
Truckee River basin in Nevada				
HR-TN-1 YES	McCarran Ranch project. Nature Conservancy projects. Use land acquisition, conservation easements, and active restoration to protect Truckee River natural resources. The Nature Conservancy has purchased 304 acres of land east of Reno and 51 acres downstream of Derby Diversion Dam, both in the 100 year flood plain.	No. This could affect water quality, not water quantity.	Goals include enhanced water quality, flood attenuation, and increased recreation opportunities.	Aggregate with TNC will restore the river channel and wetlands at the first site in 2003-2005; other work has not been scheduled.

Table CE-4-1h.—Habitat restoration, including weed control

Reference number/ considered further?	Project name and description	In operations model?	Indicators potentially affected	Meet all criteria for further consideration
HR-TN2 NO	Restore Mustang Ranch. BLM has acquired the 340 acre ranch along 2.5 miles of the Truckee River to maintain and protect the river floodplain. Some properties will be offered for sale.	No. This could affect water quality, not water quantity.		Not considered further. This is currently taking place.
HR-TN-3 NO	Develop a master plan for lands in the 500 year floodplain.		Dispose of buildings, transfer surface water rights (460 acre-feet) to the Pyramid Tribe for water quality purposes, and provide road easement to Lockwood Landfill. Replace livestock and irrigated fields with native seed mixes. Treat noxious weeds.	Not considered further (1). No specific proposals
HR-TN-4 NO	Control tall whitetop along the Truckee River. Several weed control groups map and control tall whitetop with mechanical and chemical methods.	No. This would not affect water quantity.		Not considered further (7). Would not affect indicators.
HR-TN-5 NO	Manage purple loosestrife. Nevada Division of Agriculture has been spraying with water labeled glyphosate since 1998. These programs are anticipated to continue and accelerate.	No. This would not affect water quantity.	Eradicating purple loosestrife is unlikely	Not considered further (7). Would not affect indicators.

Table CE-4-1h.—Habitat restoration, including weed control

Reference number/ considered further?	Project name and description	In operations model?	Indicators potentially affected	Meet all criteria for further consideration
HR-TN-6 NO	Control Eurasian water milfoil in the Truckee River System. There is not organized survey program for this in the Truckee River System. See HR-LT-4.	No. This would not affect water quantity.	There have not been formal surveys for the species. Significant problems are anticipated if the species reaches the Lahontan Valley wetlands as the plant prefers shallow warmer water. The plant's survivability in Pyramid Lake is unknown, but the salt content may thwart the plant.	Not considered further (7). Would not affect indicators.
HR-TN-7 See HR-TN-8.	Restore Steamboat Creek. Washoe-Storey Conservation District has a Steamboat Creek Restoration plan to change policies and implement projects (1998).	No. This would not affect water quantity.	The creek is the largest non-point source of pollution to the Truckee River. Goals are to improve water quality, restore the creek to a sustainable condition, re-establish vegetation and wildlife habitat, and combine restoration with recreation.	Broad plan. HR-TN-8 is the only known specific future plan so far.
HR-TN-8 YES	Restore 1.2 to 2.2 miles on Steamboat stream upstream of the confluence with the Truckee River. COE is developing a plan with several alternatives.	No. This would not affect water quantity.		Yes.

Table CE-4-1h.—Habitat restoration, including weed control

Reference number/ considered further?	Project name and description	In operations model?	Indicators potentially affected	Meet all criteria for further consideration
HR-TN-9YES	Add fish screen to Derby Diversion Dam. The fish passage facility is not yet operational.	No. we did not operations model how far upstream the fish can get.	Now, Derby Diversion Dam impedes fish moving in the Truckee River, preventing access to upstream spawning and rearing habitat. Fish passage would benefit resident and migratory fish species and would assist in recovering Cui-ui and LCT as well as provide cultural and economic benefits to the Pyramid Lake Tribe.	
HR-TN-10 YES	Improve Idlewild Park Pond. The City of Reno proposes dredging a channel through the lower pond and providing an aerator.	No.	This will provide habitat for fish and the aerator will help water circulation in the pond. The pond drains to the Truckee River, and improvements should improve water quality. Water quality in Truckee River Fish	Yes. Aggregate projects to improve water quality in the Truckee River.
HR-TN-11 NO	Restore wetlands on Pyramid Lake Indian Reservation. The Pyramid Lake Tribe's study for restoring wetlands at Mud Lake Slough and Winnemucca Lake is scheduled to be completed in 2004.	No. Operations model does not show water leaving Pyramid Lake or Truckee River for these locations.	This would require water taken from Pyramid Lake or additional water-	Not considered further (0). No specific proposal.

Table CE-4-1h.—Habitat restoration, including weed control

Reference number/ considered further?	Project name and description	In operations model?	Indicators potentially affected	Meet all criteria for further consideration
HR-TN-12 Part of analysis; not part of cumulative effects analysis.	Restore and enhance leopard frog habitat near Marble Bluff. Under NRCS Wildlife Habitat Incentives Program, NRCS and the Tribe are installing fences, planting vegetation, controlling noxious weeds, and enhancing wetlands.	No. Would not affect water quantity.		Not in cumulative effects analysis, but in main analysis.
HR-TN-13 NO	Continue NRCS Environmental Quality Incentives Program to improve irrigation water management and grazing land and control noxious weeds. About 35 contracts have been developed along the Truckee River downstream from Reno Sparks, and most are on the Pyramid Lake Indian Reservation. Some streambank and shoreline protection work has been done to control erosion from the 1997 flood.	No. Would not affect water quantity	Practices include installing fences, ditches, land leveling, water control structures, surface irrigation systems, and water conveyance pipelines; managing water, prescribed grazing; recovering irrigation tailwater; protecting ponds, streambanks, and shorelines; and clearing and snagging.	Is this a past or current action covered under past cumulative effects? Not considered further (5). Insufficient information to analyze.

Table CE-4-1h.—Habitat restoration, including weed control

Reference number/ considered further?	Project name and description	In operations model?	Indicators potentially affected	Meet all criteria for further consideration
		Lahontan Valley		
HR-LV-1	Implement Lower Carson River Coordinated Resource Management Project. This Lahontan Conservation District program selects projects annually, including riparian restoration, beaver control, debris removal, grazing management, and weed control.	No. Would not affect water quantity	Goals are to return the lower Carson River to a healthy, thriving desert river environment with improved recreational opportunities and wildlife habitat while reducing flooding, erosion, and other problems. Habitat restoration projects could improve water quality and water quantity and habitat for wildlife and aquatic resources, downstream from Lahontan Reservoir.	Not considered further (7). Any potential effects are downstream from Lahontan Reservoir.
HR-LV-2 YES. Aggregate as habitat restoration	Restore Carson River upstream of Lahontan Reservoir. The Dayton Valley Conservation District anticipates completing about 2 habitat restoration projects per year over the next 8 to 10 years to restore about 2,500 feet of habitat along the river each year.	No. Would not affect water quantity.	No further analysis, but say habitat restoration projects could improve water quality and water quantity of water flowing into Lahontan Reservoir.	YES. Aggregate.
HR-LV-3 YES. Aggregate as habitat restoration	Restore habitat on the East Fork of the Carson River at Dresslerville Ranch. The Washoe Tribe is using bank stabilization and fencing out cattle, and revegetating banks along 2,500 feet. Work will continue until 1½ miles of the river bank has been restored.	No. Would not affect water quantity.	No further analysis, but say habitat restoration projects along the Carson River upstream of Lahontan Reservoir could improve the quantity and quality of water flowing into the Lahontan Reservoir.	This is a present action.

Table CE-4-1h.—Habitat restoration, including weed control

Reference number/ considered further?	Project name and description	In operations model?	Indicators potentially affected	Meet all criteria for further consideration
HR-LV-4 YES. Aggregate	Restore streambanks on Clear Creek, a Carson River tributary.	No. Would not affect water quantity.	The goal is to reintroduce LCT to the Clear Creek system. Habitat restoration projects along the Carson River upstream of Lahontan Reservoir could improve the quantity and quality of water flowing into the Lahontan Reservoir.	Aggregate habitat restoration…
HR-LV-5 NO	Implement NRCS Wildlife Habitat Assistance Program.	No. Would not affect water quantity.		Treat same way as HR-TN-13 Not considered further (5). Insufficient information.
HR-LV-5a	Improve habitat for raptors and mammals by controlling livestock grazing and installing cottonwood poles and seeding to improve riparian herbaceous cover.	No. Would not affect water quantity.		This is a current action.
HR-LV5b	Improve wetland and upland wildlife habitats, control noxious weeds and livestock grazing, and improve water quality upstream of Cradlebaugh Bridge	No. Would not affect water quantity.		This is a current action.

Table CE-4-1i.—Instream projects

Reference number/ considered further?	Project name and description	In operations model?	Indicators potentially affected	Meet all criteria for further consideration?
Truckee River basin in California				
IP-TC-1 YES	Replace Farad Diversion Dam. Sierra Pacific proposes to replace the diversion structure washed out in 1997. This will have a fish passage at Floriston, access roads and recreational portage, slope stabilization and restoration plantings. There is an EIR	Yes. Management of streamflows as part of this project is incorporated into operations model and is part of the baseline for current and future condition.	The structure is designed for recreational use and passage as well as fish passage. The applicant will divert up to its water right when available with mitigation measures (minimum flow of 150 cfs in the bypass reach below the dam), 1 weekend per month of recreational flows from April through September.	Yes
IP-TC-2 NO	Repair Donner Lake Dam spillway. The Truckee Meadows Water authority proposes to strengthen the dam to reduce risk of collapse if there is an overspill.	Yes. Operations model accounts for current Donner Lake Dam operations. If the outlet works is redesigned to release a higher amount of water, this is not modeled.	Repairs would be on the existing structure with minimal disturbance to the surrounding environment. Fish flows downstream from Donner Lake.	Not considered further (5). Insufficient information to determine potential effects/

Table CE-4-1j.—Fish stocking and management programs

Reference number/ considered further?	Project name and description	In operations model?	Indicators potentially affected	Meet all criteria for further consideration
Lake Tahoe basin				
FS-LT-1 NO	Stock rainbow trout. Nevada Department of Wildlife allocated 200,000 fingerlings for Lake Tahoe streams each year through 2005 and 30,000 10+ inches in 2003.	No. Operations model does not reflect the ability of reservoirs to support the fish. Part of the current conditions rather than part of TROA	No. Part of analysis of No Action analysis; mentioned that these are stocked.	Not considered further (4).
Truckee River basin in California				
FS-TC-1 NO	Stock native and non-native fish. California Department of Fish and Game have stocked about 400,000 fingerlings and 172,000 catchable fish (rainbow trout, brown trout, LCT, Kokanee trout, and Eagle Lake trout in 2003.	No. Would not affect amount or quality of water	Goal is to enhance public fishing opportunities in lakes, reservoirs, and rivers. CDFG expects to continue its fish stocking program contingent upon ecological impacts, public demand, and availability of funding. How many fingerlings and catchable trout per year are reasonably foreseeable to stock? CDFG stocked LCT in Trucker River and Fallen Leaf Lake in 2002, but not 2003. What is the status of LCT stocking and programs to revive these populations and what CDFG actions for LCT are reasonably foreseeable through 2033?	No (4). Handled in No Action analysis for fish analysis in Truckee River.

Table CE-4-1j.—Fish stocking and management programs

Reference number/ considered further?	Project name and description	In operations model?	Indicators potentially affected	Meet all criteria for further consideration
FS-TC-2 NO	Study status of native amphibians in stocked lakes in Sierra. CDFG is stocking fish unless there is an adverse effect to mountain yellow-legged frogs or to Yosemite toads.	No.	Recently, concerns have been raised about the survival of native amphibians in areas where fish have been stocked historically. What studies are being done and when are they expected to be completed? What options are being looked at to balance fish stocking and native amphibian concerns? Are other options being considered to help native amphibians? How will these reasonably foreseeable actions affect water quality, habitat, biological resources, recreation?	Not considered further (0). No specific proposal.
Truckee River basin in Nevada				
FS-TN-1 NO	Reestablish LCT from Pyramid Lake. NDOW and the Pyramid Tribe have an MOA for a cooperative multi-species stocking program, and NDOW proposes stocking 30,000 LCT 8+ inches long in place of rainbow trout in 2004 and 2005. NDOW would also stock brown trout and triploid rainbow trout for fishing.	Not in operations model.	Program is exploring the contributions of stocked LCT to the recreational sport fishery in the Truckee River. Triploid rainbow trout supplement this stocking effort in high use areas of the river.	No (4).

URBAN DEVELOPMENT

Basic questions:

- How much urban and rural growth is anticipated?
- Is this growth covered in the population and census projections used in the economic, recreation, and social analyses?
- Is this development covered in the projected future water use and water rights for this area?
- Where is the water coming from for this development and is that planned for?
- What are the plans for development?
- Where would development be allowed to occur and how does this relate to instream flows, water use (surface and ground), etc.?

Treat all urban development in the same manner.

Counties and cities have plans for urban development (e.g., Martis Valley community plan). Urban development will be regulated on a local basis, and they have the authority and means to do this.

Operations model assumes full buildout and includes impervious surfaces, etc.

Additional impervious surfaces would increase runoff and reduce groundwater recharge, as well as increase pollutants from development, roads, and commercial facilities.

Discuss plans for floodplain management, stormwater runoff may affect timing, amount, quality, and quantity of water. List wetlands, other indicators.

Determine what is not in the operations model, what is not analyzed (4) Merlynn, any water quality aspects

Does operations model include urban runoff from areas other than Truckee Meadows?

Were adjustments made below Lake Tahoe?

Urban development takes place in different areas (e.g., Fernley, Fallon, Lyon) and these would have different types of effects, depending on the area...

Table CE-4-1k.—Urban development

Reference number/ considered further?	Project name and description	In operations model?	Indicators potentially affected	Meet all criteria for further consideration?
		Lake Tahoe basin		
UD-LT- 1 YES	Use Best Management Practices and limit development in the basin to the number of developable lots. The Tahoe Regional Planning Agency Land Use Element of the Regional Plan limits development to existing urban boundaries with established uses.	Yes. The level of future development is in operations model, and operations model considers the effect of flows to Lake Tahoe.	TRPA estimates that there are about 6,500 undeveloped lots, and that all land will be developed by 2033. Residential development will also bring more retail businesses; increased demands for water, fire and police protection, roads, sewer service, and recreational facilities. Each residential development may create 3,200 square feet of impervious service, about 478 acres total, or about 0.23 percent of the land area of the Tahoe Hydrologic Basin. More impervious surfaces would result from roads and commercial development. BMPs include infiltration facilities for runoff, stabilization of slopes, vegetation, drainage conveyances, and paving. Additional impervious surfaces would increase runoff and reduce groundwater recharge, as well as increase pollutants from development, roads, and commercial facilities	Yes. Aggregate.

Table CE-4-1k.—Urban development

Reference number/ considered further?	Project name and description	In operations model?	Indicators potentially affected	Meet all criteria for further consideration?
Truckee River basin in California				
UD-TC-1 YES	Promote and encourage growth in community regions while limiting growth in rural regions.	Yes, the level of future development is in operations model, and operations model considers the effect of flows to Lake Tahoe.	Rural region growth is limited to 3-acre minimum parcel size and impervious surface coverage of 20 percent; other rural residential land use designations are allowed 10 percent maximum impervious surface coverage. Rural and highway commercial development is allowed a maximum impervious surface coverage of 85 percent.	Yes. Aggregate with growth plans.
UD-TC-2 YES	Implement town of Truckee growth plan. Truckee is designated as a community region (See UD-TC-1.)	Yes. The level of future development is in operations model, and operations model considers the effect of flows to Lake Tahoe.	Truckee is expected to achieve full residential development before 2033 with 22,500 people 17,623 housing units total, and an additional 5,000,000 square feet of commercial/ retail/office space. LRWQCB regulates pollutant discharge from development, with BMPs to filter sediment and other contaminants from urban runoff from storm events up to a 20-year, 1-hour storm.	Yes.

Table CE-4-1k.—Urban development

Reference number/ considered further?	Project name and description	In operations model?	Indicators potentially affected	Meet all criteria for further consideration?
UD-TC-3 YES	Implement Placer County growth plan. The Martis Valley Community Plan, completed in May 2003, projects that the portion of the plan area in Placer County could be 37-53 percent fully developed by 2020 This Final EIR is currently being challenged in court.	Yes. The level of future development is in operations model, and operations model considers the effect of flows to Lake Tahoe.	This would mean additional dwelling units between 1465 and 2965 to 2020, with an ultimate holding capacity of 9,200 residential units and 23,000 people. Total land area of the valley within Placer County is about 25,570 acres.	Yes. Aggregate.
UD-TN-1 YES	Reno, Sparks, and Washoe County development. The draft 2002 Truckee Meadows Regional Plan plans for the forecasted population growth to be at least 35 percent infill within McCarran Boulevard and no more than 64 percent outside McCarran Boulevard.	Yes. The level of future development is in operations model, and operations model considers the effect of flows to Lake Tahoe.	All of the land within McCarran Boulevard and most of the area outside McCarran Boulevard drain to the Truckee River or tributaries. These developments would result in impermeable surfaces that could increase stormwater and other urban runoff which would drain ultimately to the Truckee River.	Reference the county and city master plans (20 years) zoning of different lands in the Truckee Meadows for various development activities, and then relate it to projected population growth. Yes. Aggregate

Table CE-4-1k.—Urban development

Reference number/ considered further?	Project name and description	In operations model?	Indicators potentially affected	Meet all criteria for further consideration?
UD-TN-2 NO	Develop Tahoe-Reno Industrial Center, which could become the largest industrial center in the nation. This is the major development planned for Storey County and would be a 25-year build out (fully developed in 2028??) Do not know status of water rights or supplies. Tribe has voiced their concern.	Yes. The level of future development is in operations model, and operations model considers the effect of flows to Lake Tahoe.	Now there are no ordinances for flood control or storm water runoff, but Storey County is working with Washoe County to develop measures to address these issues. The industrial center master plan shows a series of flood detention and retention basins designed to handle a 100- year flood event.	Not considered further (5). Insufficient detailed information: do not know specific industries that will be in the area.
UD-TN-3 NO	Develop Virginia City Highlands area, currently zoned low density residential.	No. But this would not affect water quantity.	Homes are served by septic systems and wells. Increased impermeable surfaces. More residential development may occur in areas currently zoned low density residential (e.g., Virginia City Highlands).	Not considered further (5). Treat generically.

Table CE-4-1k.—Urban development

Reference number/ considered further?	Project name and description	In operations model?	Indicators potentially affected	Meet all criteria for further consideration?
UD-TN-4 NO	Expand Lockwood Regional Landfill, south of the Truckee River in Lagomarsino Canyon. This would continue to 2008 and include a 13,280-foot-long road next to the existing landfill starting from the new Mustang Bridge.	No. But would not affect water quantity	A stormwater plan will be in place during construction. Stormwater from hills surrounding the landfill is and would continue to be diverted away from the landfill. On site stormwater is directed to settlement and retention ponds and is used for dust control on the landfill. This landfill does not accept hazardous waste. Water quality	Not considered further (6, 7).
UD-TN-5 YES	Propose development along the Truckee River in Storey County.	No. This is outside of the incorporated area; however, total water rights use is modeled. This could change the amount of flows, depending on source of water rights.	Could lower the water table. Groundwater Water quality Riparian vegetation	Yes
UD-TN-6 YES. Aggregate	Develop city of Fernley	Yes. This is in the optional scenario analysis.	Anticipated population growth is expected to be an additional 25,000 to 30,000 people over the current population of about 12,340. The city has no long-range capital improvement plan to 2033, but would maintain existing roads and purchase new lands for parks.	

Table CE-4-1k.—Urban development

Reference number/ considered further?	Project name and description	In operations model?	Indicators potentially affected	Meet all criteria for further consideration?
		Lahontan Valley		
UD-LV- 1 YES AGGREGATE	Develop Churchill County and City of Fallon. Residential and commercial development has increased and is expected to increase.	No. City of Fallon is not included in operations model.	Under existing conditions, groundwater supplies and water quality are already at levels of concern for some individual well owners. Increased growth would create more demand on groundwater supplies. What are these levels of concern and how much would they increase?	Yes. Aggregate.

Table CE-4-1k.—Urban development

Reference number/ considered further?	Project name and description	In operations model?	Indicators potentially affected	Meet all criteria for further consideration?
UD-LV-2 YES. Aggregate.	Develop Carson River watershed in Lyon County. Residential and commercial development has increased and is expected to increase.	No.	Anticipated developments would provide 6,807 to 6,997 single family residences on 3,814 acres. Additional impervious surfaces would include streets and sidewalks and some commercial development. Flood detention and parks would likely be part of this development. Urban development in the watershed would likely increase impermeable surfaces, which may increase urban stormwater runoff and change runoff patterns and amounts from lawn irrigation and other urban uses, thereby modifying the amount and quality of water flowing to the Carson River. This water, in some months, may reach Lahontan Reservoir.	Yes. Aggregate

Table CE-4-1k.—Urban development

Reference number/ considered further?	Project name and description	In operations model?	Indicators potentially affected	Meet all criteria for further consideration?
UD-LV-3 YES. Aggregate.	Develop Carson Valley, Douglas County.	No.	1996 plan forecasts 19,208 future dwelling units on 11,559 acres by 2015, with an additional 14,036 acres of land for commercial, industrial, community, recreation, and rights of way. Anticipated development would add impervious surfaces and decrease groundwater recharge. Plan policies include encouraging water reuse and restricting development in floodplains. Based on a 3.5-percent growth rate, total Carson valley Basin water resource demand in 2000 was anticipated to be 28,797 acre-feet per year and anticipated to grow to 42,358 acre-feet per year by 2015. Land use capacity is projected to be 67,511 acre-feet per year..	

Table CE-4-1k.—Urban development

Reference number/ considered further?	Project name and description	In operations model?	Indicators potentially affected	Meet all criteria for further consideration?
UD-LV-3 YES. Aggregate (continued)			Urban development in the watershed would likely increase impermeable surfaces, which could increase urban stormwater runoff and change runoff patterns and amounts from lawn irrigation and other urban uses, thereby modifying the amount and quality of water flowing to the Carson River. This water, in some months, may reach Lahontan Reservoir.	
UD-LV-4	The Washoe Tribe plans on developing 251.5 acres of Tribal land on Lower Clear Creek, Silverado, and Stewart Ranch parcels. However, in communication with the Douglas County Planning Department, the Tribe has plans to develop these parcels for housing or light industry.	No.		Not a significant acreage for development.

These public works are considered as an aggregate:

Public works (road rehabilitation, drainage along roads) could affect water quality (check with Merlynn). Water quality would be the only indicator.

If roads are widened or permeable surfaces increased, may get slight increase in runoffs. These kinds of projects are anticipated to continue into the future.

Table CE-4-1l.—Public works and transportation projects

Reference number/ considered further?	Project name and description	In operations model?	Indicators potentially affected	Meet all criteria for further consideration?
Lake Tahoe basin				
PW-LT-1 YES. Aggregate.	Rehabilitate roads in the Lake Tahoe basin. Caltrans proposed widening, resurfacing, and or constructing additional lanes on 49.81 miles of road and widening bridges, rehabilitating culverts, and constructing a public facility.	No. But would not affect water quantity, may affect water quality.	Water quality	Yes. Aggregate
PW-LT-2	Improve water quality and rehabilitate drainage along 22.04 miles of roads in addition to the 14 projects under the Lake Tahoe EIP (See WP-LT-2.)	No. But would not affect water quantity, may affect water quality.	Water quality	Yes. Aggregate

Table CE-4-1l.—Public works and transportation projects

Reference number/ considered further?	Project name and description	In operations model?	Indicators potentially affected	Meet all criteria for further consideration?
PW-LT-3 YES	Comply with Caltrans' NPDES permit for discharges of stormwater runoff associated with construction. This regulates discharges from projects with soil disturbance of 1 acre or more.	No. But would not affect water quantity, may affect water quality.	Approved construction site BMPs for California include practices for soil stabilization, sediment control, wind erosion control, tracking control,, non-storm water management, and waste management. Adverse effects would depend on how BMPs and mitigating measures are implemented. Adverse effects could be small if measures are successful, but in many cases it is not possible to accurately predict these adverse effects or the measures' success.	Mention in aggregate (with discharges).
Truckee River basin in California				
PW-TC-1	Rehabilitate I-80. Caltrans proposed widening, resurfacing, and or constructing additional lanes on 35.55 miles as well as passing lands on 15.05 miles of road near the Little Truckee River	No. But would not affect water quantity, may affect water quality.		No. Insufficient information on timing.
PW-TC-2 YES. Aggregate.	Improve water quality and rehabilitate drainage along 29.15 miles of roads	No. But would not affect water quantity, may affect water quality.	Water quality	Yes. Aggregate.
PW-TC-3 YES	Comply with Caltrans' NPDES permit. See PW-LT-3.	No. But would not affect water quantity, may affect water quality.		Yes. Aggregate with discharge permits. See PW-LT-3.

Table CE-4-1l.—Public works and transportation projects

Reference number/ considered further?	Project name and description	In operations model?	Indicators potentially affected	Meet all criteria for further consideration?
Truckee River basin in Nevada				
PW-TN-1 YES	Extend I-80 at the Mt. Rose Highway to Bowers Mansion Interchange.	No. But would not affect water quantity, may affect water quality.		Yes. Aggregate.
PW-TN-2 YES	Implement Washoe County Regional Transportation Plan, which emphasizes widening roads rather than building new ones: 50 road widening projects and 33 new roads, including the US 395 extension. Several new highway interchanges are proposed.	No. But would not affect water quantity, may affect water quality.		Yes. Aggregate. See PW-TN-1.
PW-TN-3 YES	Reno Train Trench	No. But would not affect water quantity, may affect water quality.		Yes.
PW-TN-4 NO	Replace or upgrade bridges over the Truckee River in Reno.	No. But would not affect water quantity, may affect water quality.		
PW-TN-5 Aggregate	Implement the Truckee River Management Project, formerly Truckee Meadows Flood Control Project (part of PW-TN-4?), the plan includes proposals to store water at undeveloped agriculture parcels, reconstruct bridges (PW-TN-4?), redesign diversion structures, and construct a river parkway. Reno-Sparks is developing the plan.	No. But would not affect water quantity, may affect water quality.	This is caught up in formulating alternatives, as the project area expanded to the Pyramid Lake. DEIS in 2005. Flood control and restoration projects are being considered. COE is designing restoration projects based on TROA minimum flows.	Aggregate with flood control. No specific project at this time

Table CE-4-1l.—Public works and transportation projects

Reference number/ considered further?	Project name and description	In operations model?	Indicators potentially affected	Meet all criteria for further consideration?
PW-TN-6 YES	Implement the Truckee River Tributaries Flood Control Plan. Washoe County would construct flood control facilities on Truckee River tributaries as funding allows.	No. But would not affect water quantity, may affect water quality.		Aggregate with flood control.
PW-TN-7 YES	Implement the 1995-2015 Washoe County Comprehensive Regional Water Management Plan.			Yes.
PW-TN-8	Find and develop sites for geo-thermal for electrical generation. The Pyramid Lake Paiute Tribe approved the feasibility study for this and is identifying sites (maybe Dodge Flat or Dead Ox Canyon) on the reservation. Geothermal development on the Reservation will not occur on sites within the Truckee River basin portion of the Reservation. Development will occur at the north end of the Reservation in a small drainage called Smoke Creek, which is outside of the Truckee River basin. Any water withdrawn would be treated and injected back into wells.	No. But this would not affect flows.		Initially, Tribal economic development plans included geo-thermal wells to be developed in the Truckee River basin within the Pyramid Lake Indian Reservation. Since then, the Tribe has decided to move well sites outside of the Truckee River basin. As a result, no cumulative effects are expected to occur.

Snowmaking is covered in TROA; puts a cap on how much can be used, lost to other drainages. This should be in the analysis. Section on snowmaking in water resources: discusses how much is pumped, what percent is part of consumptive allocation. They would have more snow making materials, which would use water under the cap?

Development at ski resorts (new buildings, etc) adds to impervious surfaces. The development of the ski resort is an urbanizing influence, part of the general trend in the area.

All of these projects would improve recreation and create jobs.

Table CE-4-1m.—Ski resorts

Reference number/ considered further?	Project name and description	In operations model?	Indicators potentially affected	Meet all criteria for further consideration?
Lake Tahoe Basin				
SR-LT-1 NO	Expand Heavenly Ski Resort. The 1996 master plan guides development at the resort for 20 years through 2016. Was to be updated in late 2003.	Yes. Basic development is included in operations model	Planned expansion adds 46.3 acres of new ski trails, increases snow making coverage to 295 acres, increases skier support facilities to 103,423 square feet, and replaces two maintenance facilities with a different one in a new location. TRPA and LRWQCB approved a set of mitigation measures to ensure water is used in appropriate quantities and locations, water entitlements are complied with, and soil erosion reduced.	Yes Not considered further (4); within limits placed on modeling for water consumption under TROA. (7) Water amounts are same under all alternatives.

Table CE-4-1m.—Ski resorts

Reference number/ considered further?	Project name and description	In operations model?	Indicators potentially affected	Meet all criteria for further consideration?
SR-LT-2 Aggregate	Retrofit parking lot (Replacing Sherwood Chairlift and building a new one not an issue unless this uses new habitat.)	Basic development is included in operations model	May improve water quality; not modeled. YES as aggregate: If retrofitting parking lots uses permeable parking lot technologies, water quality could stay the same. If older technologies (e.g., hard surfaces) are used, then water quality could degrade.	Aggregate.
Truckee River basin in California				
SR-TC-1 YES	Construction at Squaw Valley (See WP-TC-2 and WS-TC-2.) The Squaw Valley Ski Corporation is considering 15 construction projects before 2033.	Yes. Basic development is included in operations model	Projects include expanding snowmaking with a future water use of about 4,200 acre-feet; expanding existing pond for fire protection, revegetation, and snowmaking; extending snowmaking lines; and expanding domestic water supplies for the upper mountain lodges; and placing overhead utilities underground. Snowmaking, pond expansion, lodge construction and expanding water supplies would increase ground-water use and, for the pond, surface water as well.	Yes. Consider as aggregate of ski development growth.

Table CE-4-1m.—Ski resorts

Reference number/ considered further?	Project name and description	In operations model?	Indicators potentially affected	Meet all criteria for further consideration?
SR-TN-1 YES	Improve Mt. Rose/Slide Mountain facilities. Mt. Rose Ski Tahoe and the Forest Service propose diversifying skiing terrain and amenities and clarifying management of Forest Service lands within and surrounding Mt. Rose.	Yes. Basic development is included in operations model.	These lands drain to the waterways tributaries to the Truckee River. Grading, re-contouring, and road construction could adversely affect water quality in streams by increasing sediment loads, transport, deposition, and associated nutrient loading. Potential erosion from graded areas is expected to be about 55.37 tons of soil to Browns, Davis, and Winters Creeks. BMPs and a proposed Surface Water Management Plan may minimize effects. Additional snow making would be installed on about 73.5 acres.	Consider as aggregate of ski resorts.

Table CE-4-1n.—Recreation projects

Reference number/ considered further?	Project name and description	In operations model?	Indicators potentially affected	Meet all criteria for further consideration?
Lake Tahoe Basin				
R-LT-1 NO	Construct new boat docks and buoys. TRPPA can approve constructing new pieces and expanding old piers where there is no prime fish habitat. The Revised Shore Zone EIR, administrative draft stage, is expected to include an alternative that would prohibit additional structures in the shore zone.	No. Recreation benefits are incidental to other uses. Would not affect water quantity.	TRPA proposes to examine the effects of floating docks on littoral transport, which may affect future decisions on boat docks and buoys. Fish habitat around shore of Lake Tahoe Tahoe yellow cress Lake Tahoe shoreline	No. Insufficient information published at present time.
R-LT-2 NO	Construct recreational trails. The Lake Tahoe Regional Bicycle and Pedestrian Master Plan, Final Report, proposes 158.97 miles of new bicycle and pedestrian facilities by 2023.	No. Recreation benefits are incidental to other uses. Would not affect water quantity.		Not considered further (7).
R-LT-3 NO	Develop a State park. The California Department of Parks proposes developing a park at Stateline between Nevada and California with a campground on the Nevada side and a day use area and interpretive facilities on the California side.	No. Recreation benefits are incidental to other uses. Would not affect water quantity.		Not considered further (0). No specific plan.

Table CE-4-1n.—Recreation projects

Reference number/ considered further?	Project name and description	In operations model?	Indicators potentially affected	Meet all criteria for further consideration?
R-LT-4 NO	Develop a research facility for the Tahoe Research Group and resource management staff at California State Parks Bristlecone Parcel.	No. Recreation benefits are incidental to other uses. Would not affect water quantity.		Covered under urban discussion.
R-LT-5 YES. Aggregate	Rehabilitate 3 acres of Tahoe State Recreation Area	No. Recreation benefits are incidental to other uses. Would not affect water quantity.	This proposal would include removing non-native plants, restoring native vegetation, improving the riparian area, and implementing BMPs to stop erosion. Water quality	Aggregate with rehabilitation efforts.
Truckee River basin in California				
R-TC-1 NO	Relocate the museum at Donner Memorial State historic park	No. Recreation benefits are incidental to other uses. Would not affect water quantity.	Would comply with LRWQCB water quality regulations	Not considered further (7).
R-TC-2 NO	Demolish and reconstruct the Tahoe Donner Association's golf course clubhouse and expand their Trout Creek Recreation Center	No. Recreation benefits are incidental to other uses. Would not affect water quantity.		Not considered further (5). Insufficient information (7).
R-TC-3 NO	Develop a plan for a 5-mile multi-use Truckee River Legacy Trail along the river corridor from Route 267 in Truckee to Glenshire.	No. Recreation benefits are incidental to other uses. Would not affect water quantity.	The trail would avoid most riparian areas, although two sections would be located in the floodplain. One section would affect 1,000 square feet of a meadow and a stream crossing, which would be mitigated on-site at a ratio of 1.5:1 Water quality	No (6, 7).

Table CE-4-1n.—Recreation projects

Reference number/ considered further?	Project name and description	In operations model?	Indicators potentially affected	Meet all criteria for further consideration?
Truckee River basin in Nevada				
R-TN-1 OVERALL PLAN	Construct Truckee River Whitewater park. The city of Reno is creating this instream recreational park along both sides of Wingfield Park island. Completed.	No. Operations model does not reflect operations for whitewater flows.	Goal is to improve recreation in the river.	This is an overall plan. 1a, 1b, and 1c are completed and not part of the cumulative effects.
R-TN-1a Completed.	Remove Arlington Dam, as part of R-TN-1, and improve the stream. Completed.	No. Operations model does not reflect dam removal	Goal is to improve recreation and fish habitat. Specific actions include adding drop structures, creating self-scouring plunge pools, adding large riffle boulders, replacing island flood walls with boulder and riparian terraces to improve and control access to the river's edge and protect against erosion. Also, double current deflectors would create pools to dissipate stream energy and provide aeration. Portions of the river will be dewatered at times to permit construction.	
R-TN-1b Completed.	Construct a concrete pedestrian/bicycle path along Wingfield Park Island Completed.	No.		
R-TN-1c Completed.	Construct sub-grade steel sleeve to support removable slalom gate poles in the southern channel. done	No.		

Table CE-4-1n.—Recreation projects

Reference number/ considered further?	Project name and description	In operations model?	Indicators potentially affected	Meet all criteria for further consideration?
R-TN-1d NO	Provide river access and improve Mayberry Park in Reno	No.		Not considered further (5). Insufficient information.
R-TN-1e	Remove abandoned concrete piers and abutments	No.	Direct effects to the river. Fish River and recreation	Yes. Check with fish and recreation folks to determine if enough information.
R-TN-1f	Modify Chalk Bluff Dam	No.	Direct effects to the river.	Not considered further (5). Insufficient information.
R-TN-1g	Provide instream improvements, fishing enhance-ments and revegetation at Ambrose Park in Reno, and ban pedestrian access.	No.	Direct effects to the river.	Not considered further (5). Insufficient information; could aggregate instream improvements.
R-TN-1h	Provide instream improvements, fishing enhancements, river access, and revegetation at Idlewild Park in Reno and remove riprap and reterrace.	No.	Direct effects to the river.	Not considered further (5). Insufficient information.
R-TN-1i	Remove riprap and provide bank terracing and regrading, pedestrian access, and revegetation at Champion Park and Fisherman Park.	No.	Direct effects to the river.	Not considered further (5). Insufficient information.
R-TN-1j	Modify Glendale and Pioneer Dams	No.	Direct affects to the river. Goal is to improve boating and fish passage.	Not considered further (5). Insufficient information.

Table CE-4-1n.—Recreation projects

Reference number/ considered further?	Project name and description	In operations model?	Indicators potentially affected	Meet all criteria for further consideration?
R-TN-1k	Provide instream improvements, north bank access improvements, bank terracing, and revegetation at Rock Park in Sparks and remove riprap.	No.	Direct effects to the river.	Not considered further (5). Insufficient information.
R-TN-2 ????	Improve recreational paths along Truckee River. City of Reno proposes pathway widening and slope stabilization. City of Sparks anticipates resurfacing asphalt trail system by 2005.	No.	Riparian vegetation	No. This would not affect water resources.
R-TN-3 NO	Build a 27-hole golf course in the Spanish Springs Valley east of Vista Boulevard in 2004-2005	Operations model reflects baseline development, if this is not included in that then it is not modeled.	Some runoff from this project is expected to flow to the North Truckee Drain, which flows to the Truckee River.	No. This is already in the WARMF model and already considered.
Lahontan Valley				
R-LV-1	Develop a system of paved trails in Churchill County to follow the canal system. Two portions have been completed: 2.5 miles at Harmon Reservoir and a bike route along the Allen Road south of Fallon	No	Paved trails would slightly increase impermeable surfaces and stormwater runoff to drains.	Downstream from reservoir.

Table CE-4-1o.—Forestry projects

Reference number/ considered further?	Project name and description	In operations model?	Indicators potentially affected	Meet all criteria for further consideration?
F-LT-1NO	Removing trees for forest health at Lake Tahoe Basin Management Unit of the Forest Service. Will allow harvesting to improve the quality of the forest.	No	Water quality Sedimentation	No
Truckee River basin in California				
F-TC-1 NO	Implement California Department of Forestry Approved Timber Harvest plans. CDF approves timber harvests for private lands. Many projects are expected over the life of TROA. In 1997, CDF had about 100 active timber harvest plans in the basin. CDF now receives about 30 proposals annually that affect from 3,000 to 4,000 acres each. CDF reviews about 25 emergency harvest plans and over 30 exemption requests annually.	No	Water quality Sedimentation	Not considered further --- 5

Trends to convert agriculture to M&I is part of baseline as well as alternatives. This does not need to be considered further in the cumulative effects analysis.

Is this confined to Nevada? Can't we say this for the entire region?

Table CE-4-1p.—Agriculture

Reference number/ considered further?	Project name and description	In operations model?	Indicators potentially affected	Meet all criteria for further consideration?
Truckee River Basin in Nevada				
A-TN-1 NO	Converting agricultural lands to M&I use. As development continues in the Truckee Meadows, land will continue to be converted.	Yes. This issue is part of the baseline for the alternatives.		Not considered further (4). Already considered.
Lahontan Valley				
A-LV-1 NO	Converting agricultural lands to M&I use. The 1996 General Plan for Douglas County includes goals and policies to preserve agriculture uses and open space areas and to create alternatives to urban development of existing agriculture lands.	Yes. This issue is part of the baseline for the alternatives. Operations model includes total demands for the Carson Division and does not evaluate impacts for transfers, as TROA does not cause or hinder transfers.	About 9,400 acres of agriculture land has been lost to development since 1982. Additional agriculture land is expected to be converted to development of through selling agriculture water rights by willing sellers for wetlands use. Slightly effect flow to Lahontan	Upstream of Carson City Check with hydrologist. Tie into urban development. How do we address to cover potential for amount of water going to Lahontan Reservoir and how this affects diversions to the Truckee River? Considered this, but insufficient information for further analysis.

Table CE-4-1q.—Livestock grazing

Reference number/ considered further?	Project name and description	In operations model?	Indicators potentially affected	Meet all criteria for further consideration?
Truckee River basin in Nevada				
LG-TN-1	There is approximately 1,500 head of livestock grazing on tribal grazing allotments within the Truckee River basin. These numbers fluctuate based upon climatic conditions (drought) and available forage. For example, the North Pyramid Lake Unit has the capacity for 1,210 head of livestock. Due to overgrazing in the past and dry conditions, the unit has been reduced to 708 head of livestock. The number of livestock grazing on tribal lands in the lower Truckee River could vary from 1,500 to 1,000 with the current livestock grazing plan in place through 2033.	No. This may affect water quality but not water quantity. Stock water is in operations model.	The Tribe is installing fencing and removing livestock to restore riparian areas along the Truckee River. Riparian vegetation along the lower river which affects Water quality, water quantity, habitat for fish	